International Journal of Theoretical Physics

Volume 27, Number 1 January 1988

CONTENTS

Important Announcement 1

Ratio of Magnetic Charge to Charge and of Magnetic Mass to Mass 3
*Anne M. R. Magnon*

Towards a Combinatorial Description of Space and Strong Interactions 9
*P. Żenczykowski*

Mass Spectral Condition for Leptons and Quarks 27
*Gerald Rosen*

Hydrogen Spectrum of SS433 System 33
*Jeffrey M. Cohen, Peter A. Kazaks, Boris Kuharetz, Mitchell Struble, and Mark Azbell*

$O(5) \times U(1)$ Electroweak Gauge Theory and the Neutrino Oscillations in Matter 37
*Y. A. Haman and M. Samiullah*

Loop Algebra of Lie Symmetries for a Short-Wave Equation 47
*Swapna Roy, A. Roy Chowdhury, and Mrityunjoy De*

Spinor Fields with Zero Mass in Unbounded Isotropic Media 57
*P. Hillion*

Example of Order and Disorder: $x_{n+1} = (Ax_n + B) \bmod C$ 73
*M. Wolf*

Computability of Physical Operations 83
*Andrzej Posiewnik*

Iwasawa Factorization of the Pseudo-Orthogonal Group $SO(5, 1)$ and Its Corresponding Lie Algebra $so(5, 1)$ 89
*G. C. Chukwumah*

Fourth-Order Orbital Equations in Stationary Weak Gravitational Fields 107
*J. M. Gambi, A. San Miguel, and F. Vicente*

International Journal of Theoretical Physics

Volume 27, Number 2 February 1988

CONTENTS

**This issue contains papers presented at the Loyola Conference on Mathematical and Interpretational Problems in Relativistic Quantum Theory, May 27–30, 1987. Guest Editor: A. R. Marlow.**

Guest Editor's Introduction 131
*A. R. Marlow*

Quantum Insights from Null-Strut Geometrodynamics 133
*Arkady Kheyfets, Norman Joseph LaFave, and Warner Allen Miller*

*P*(4) Affine and Superhamiltonian Formulations of Charged Particle Dynamics 159
*Arkady Kheyfets and Larry K. Norris*

Metrics Are Clifford Algebra Involutions 183
*John Dauns*

Realistic Quantum Probability 193
*Stanley Gudder*

What Do We Learn about Quantum Mechanics from the Theory of Measurement? 211
*L. E. Ballentine*

Bell's Theorem Does Not Eliminate Fully Causal Hidden Variables 219
*Carl H. Brans*

An Overview of the Transactional Interpretation of Quantum Mechanics 227
*John G. Cramer*

Copenhagen and Transactional Interpretations 237
*Th. Görnitz and C. F. von Weizsäcker*

Gravity in Hyperspin Manifolds 251
*Shlomit Ritz Finkelstein*

Progress in a Trajectory Interpretation of the Klein–Gordon Equation 273
*Edward R. Floyd*

Axially Symmetric Solution to Rosen's Field Equations with Angular Momentum 283
*R. J. Knill, W. R. Stoeger, and A. P. Whitman*

# International Journal of Theoretical Physics

**Volume 27, Number 3** **March 1988**


## CONTENTS


Reconstruction of Abstract Quantum Theory 289
*M. Drieschner, Th. Görnitz, and C. F. von Weizsäcker*

Are There Other Types of Skyrmions? 307
*Tie-zhong Li*

Extended Geroch-Held-Penrose Formalism 315
*Garry Ludwig*

Canonical Formalism and Equations of Motion for a Spinning Particle in General Relativity 335
*Gerald E. Tauber*

Radiating Fluid Distribution Interacting with Scalar Field 345
*Koijam Manihar Singh*

Satellite Test for Dragging of Inertial Frames 365
*Arnold Rosenblum and Manfred Treber*

Exact Solutions to Einstein Field Equations 369
*Ashis Basu and Dipankar Ray*

Stability of the General Exponent of Nonlinear Impulsive Differential Equations in a Banach Space 373
*D. D. Bainov, P. P. Zabreiko, and S. T. Kostadinov*

BOOK REVIEW: Introduction to Analytical Dynamics 381

International Journal of Theoretical Physics

Volume 27, Number 4 April 1988

CONTENTS

Canonical Path-Integral Quantization of Yang-Mills Field Theory with Arbitrary External Sources 383
*Jerzy Prezeszowski*

Quantum Normal Form and the Harmonic Oscillator with $x^6$ Perturbation 397
*S. Brajamani and P. S. Mazumdar*

Functional Approach to Scattering in Quantum Field Theory 401
*Edward B. Manoukian*

Phase Transformations in Quaternionic Quantum Field Theory 409
*C. G. Nash and G. C. Joshi*

Gleason's Theorem and Completeness of Inner Product Spaces 417
*Anatolij Dvurečenskij and Ladislav Mišík, Jr.*

Dynamics of Constrained Systems 427
*Narciso Román-Roy*

Square Eigenfunction Approach to the Hamiltonian Structure for a New Hierarchy of Nonlinear Equations 433
*Swapna Roy and A. Roy Chowdhury*

Exact Solutions to a Coupled Nonlinear Equation 447
*C. Guha-Roy*

Bayesian Approach to Thermostatistics 451
*B. H. Lavenda*

"Superconducting" Causal Nets 473
*David Finkelstein*

International Journal of Theoretical Physics

Volume 27, Number 5 May 1988

CONTENTS

Inflationary Universe without GUTs 521
*E. Gunzig and P. Nardone*

Abstract Quantum Theory and Space-Time Structure. I. Ur Theory and Bekenstein-Hawking Entropy 527
*Thomas Görnitz*

Feynman Rules for Probability Amplitudes 543
*Yoel Tikochinsky*

Cabibbo Angle II 551
*Chandra Raju*

Nonstandard Analysis in Classical Physics and Quantum Formal Scattering 557
*F. Bagarello and S. Valenti*

Classical Limit of an $SU(2) \times U(1)$ Gauge Field Theory for Gravity 567
*H. Dehnen, F. Ghaboussi, and H. Frommert*

Dynamical Structures for $k$-Vector Fields 571
*Geoffrey Martin*

Conditional Expectations, Conditional Distributions, and *A Posteriori* Ensembles in Generalized Probability Theory 587
*Werner Stulpe*

Geometric Calculus: A New Computational Tool for Riemannian Geometry 613
*A. Moussiaux and Ph. Tombal*

Gauge-Invariant Perturbations in Anisotropic Homogeneous Cosmological Models 623
*Amar Chandra Patra and Dipankar Ray*

Stiff Magnetofluid Cosmological Model 627
*Raj Bali and Atul Tyagi*

Stationary Axisymmetric Solutions in the Vacuum Jordan-Brans-Dicke Theory 635
*Alberto García, Nora Bretón, and Isidore Hauser*

Static Vacuum Solution of Direct Poincaré Gauge Theory in Ten Dimensions with Four External 641
*Dominic G. B. Edelen*

Wave Propagation in Strongly Coupled Classical Plasmas in an External Magnetic Field 649
*R. O. Genga*

International Journal of Theoretical Physics

Volume 27, Number 6 June 1988

CONTENTS

Connections between Abstract Quantum Theory and Space-Time Structure II. A Model of Cosmological Evolution 659
*Thomas Görnitz*

Representation of Supercharges over the Scattering Data for Super-Sine-Gordon System 667
*Shibani Sen and A. Roy Chowdhury*

Spectrum of Strange Mesons 673
*P. Burcev*

$O(5) \times U(1)$ Electroweak Gauge Theory and the Relevance of the Cabibbo Angle in $CP$ Violation in $K$ Decays 677
*M. Samiullah*

Gauge Symmetries of Electroweak Interactions 689
*S. Rajpoot*

Higher-Order Theory of Gravitation 695
*S. N. Pandey*

General Necessary Conditions for the Derivation of the Secondary Constraints of a First-Order Relativistic Wave Equation 703
*C. G. Koutroulos*

Generalization of the Darwin Lagrangian 711
*Wojciech Frejlak*

Symmetry Vector Fields and Similarity Solutions of a Nonlinear Field Equation Describing the Relaxation to a Maxwell Distribution 717
*N. Euler, P. G. L. Leach, F. M. Mahomed, and W.-H. Steeb*

Irreversibility Paradox Revised: Onset of a Center Manifold in Dissipative Systems 725
*Ariel Fernández*

Characteristic Exponents of Impulsive Differential Equations in a Banach Space 731
*P. P. Zabreiko, D. D. Bainov, and S. I. Kostadinov*

Strong Stability of Impulsive Systems 745
*G. K. Kulev and D. D. Bainov*

Monotone-Iterative Method for Solving the Periodic Problem for Systems of Impulsive Differential Equations 757
*S. G. Hristova and D. D. Bainov*

A Solution Spectrum of the Nonlinear Schrödinger Equation 767
*W. Ulmer*

International Journal of Theoretical Physics

Volume 27, Number 7 July 1988

CONTENTS

Gauge Invariance Properties of Transition Amplitudes in Gauge Theories. I 787
*Edward B. Manoukian*

Intractable Problems in Reversible Cellular Automata 801
*Farrokh Vatan*

High-Frequency Sum Rules for Classical One-Component Plasma in a Magnetic Field 819
*R. O. Genga*

Wave Propagation in Quasi-One-Dimensional Quantum Plasma in a Magnetic Field 835
*R. O. Genga*

High-Frequency Sum Rules for the Quasi-One-Dimensional Quantum Plasma Dielectric Tensor 851
*R. O. Genga*

Fundamentals of Surface Thermodynamics 861
*A. Grauel*

Painlevé Test for Long-Wave, Short-Wave Interaction Equation. II 901
*Pranab K. Chandra and A. Roy Chowdhury*

Clock Transport Synchronization and the Dragging of Inertial Frames for Elliptical Orbits 921
*Arnold Rosenblum and Manfred Treber*

International Journal of Theoretical Physics

Volume 27, Number 8 August 1988

CONTENTS

Canonical Quantization and Chromodynamics in a Spherical Cavity 925
*R. F. Buser, R. D. Viollier, and P. Zimak*

Electric Currents in Multiply Connected Spaces 995
*Theodore Frankel*

Reggeon Scattering in an External Field: A Solitonic Model 1001
*A. Roy Chowdhury and B. Sidhanta*

Hyperspherical Harmonic Model for the Ground State Baryons 1007
*Andrea Raspini*

Mikhailov's Experiments on Detection of Magnetic Charge 1019
*David Akers*

Statistical Mechanics with Homogeneous First-Degree Lagrangians 1023
*R. Akin-Ojo*

International Journal of Theoretical Physics

Volume 27, Number 9 September 1988

CONTENTS

Phase-Space Propagators for Quantum Quadratic Hamiltonians in One and Two Dimensions 1043
*L. M. Nieto and J. M. Noriega*

State on Splitting Subspaces and Completeness of Inner Product Spaces 1059
*Anatolij Dvurečenskij and Sylvia Pulmannová*

Fuzzy Quantum Spaces and Compatibility 1069
*Anatolij Dvurečenskij and Ferdinand Chovanec*

Curvature Tensors and Unified Field Equations on $SEX_n$ 1083
*Kyung Tae Chung and Il Young Lee*

Three- and Five-Dimensional Considerations of the Geometry of Einstein's $^*g$-Unified Field Theory 1105
*Kyung Tae Chung and In Ho Hwang*

Magnetograph Transformation in MFD 1137
*Shesh Nath Singh*

**International Journal of Theoretical Physics**

**Volume 27, Number 10** **October 1988**

## CONTENTS

A Discrete Geometry: Speculations on a New Framework for Classical Electrodynamics 1145
*Geoffrey Hemion*

The Reality and Dimension of Space and the Complexity of Quantum Mechanics 1257
*R. Mirman*

Quadratic Kinetic Equations Are Linear in the Tensor Product Space 1277
*H. Tomasz Grzybowski*

Stationary Axisymmetric Solutions of the Jordan–Brans–Dicke Equations with Electromagnetic Sources 1281
*D. Alberto Garcia and H. Guadalupe Martínez*

International Journal of Theoretical Physics

Volume 27, Number 11 November 1988

CONTENTS

Probability and Logical Structure of Statistical Theories 1285
*Michael J. W. Hall*

On the Logical Foundations of the Jauch–Piron Approach to Quantum Physics 1313
*Gianpiero Cattaneo, Carlo Dalla Pozza, Claudio Garola, and Giuseppe Nistico*

Spatial Extension of Quantum Gravitational Particles in $R^4 \times K^N$ 1351
*Gerald Rosen*

$O(5) \times U(1)$ Electroweak Gauge Theory and the Triggering of the Neutrino Oscillations by 't Hooft–Polyakov Monopole 1355
*M. Samiullah*

Derivation of Quantum Statistics from Gauss's Principle and the Second Law 1371
*B. H. Lavenda*

Intermediate Quantum Statistics for Identical Objects 1383
*V. V. Kuryshkin*

Existence of the Gravitomagnetic Interaction 1395
*Ken Nordtvedt*

Swinging Atwood Machine. Far- and Near-Resonance Region 1405
*A. Roy Chowdhury and M. Debnath*

$L_p$-Equivalence of Impulsive Equations 1411
*D. D. Bainov, S. I. Kostadinov, and P. P. Zabreiko*

Geometrization of Two-Phase Magnetofluid Flows in a Rotating System 1425
*C. Thakur and R. B. Mishra*

International Journal of Theoretical Physics

Volume 27, Number 12 December 1988

CONTENTS

Entropy and $P$-Particle Observables. I. The General Program 1435
*Henry E. Kandrup*

Two-Dimensional Percolation and Classical String Theory 1457
*E. Ahmed*

Common Tangent Space $\mathbb{R}_1^4$ from $U(2)$ Charges 1461
*E. Donth*

Lagrangians for Conformal Gauge Gravity and Conformal Simple Supergravity 1499
*Shao Changgui and Guo Youzhong*

On a Recent Attempt to Define the Interpretation Basis in the Many Worlds Interpretation of Quantum Mechanics 1507
*Sara Foster and Harvey Brown*

Invariant Forms and Hamiltonian Systems: A Geometrical Setting 1533
*Josep Llosa and Narciso Roman Roy*

Author Index for Volume 27 1545

1988

1435

1457

1461

1499

1507

1533

1545